WHAT IS CLAIMED IS:

1. A method for making a more uniform plasma and process in a processing chamber for treating a treatment surface of a treatment object within the chamber using an inductively coupled plasma source which produces an asymmetric plasma density pattern at the treatment surface using a slotted electrostatic shield having uniformly spaced-apart slots, said method comprising the steps of:

modifying said slotted electrostatic shield in a way which compensates for said asymmetric plasma density pattern to provide a modified plasma density pattern at said treatment surface.

2. The method of claim 1 wherein the asymmetric plasma density pattern includes a first region having a reduced plasma density which is less than an average plasma density of the asymmetric plasma density pattern and wherein the step of modifying said shield includes the step of forming a modified slot pattern in a modified shield such that a first portion of the modified slot pattern adjacent to said first region includes an increased effective aperture that is greater than an average effective aperture of the overall modified slot pattern, to create a modified plasma density in said first region which is greater than said reduced plasma density.

3. The method of claim 1 wherein the asymmetric plasma density pattern includes a first region having a reduced plasma density which is less than an average plasma density of the asymmetric plasma density pattern and wherein the step of modifying said shield includes the step of forming a modified pattern of openings in a modified shield such that a first portion of the modified pattern of openings adjacent to said first region includes an increased effective aperture that is greater than an average effective aperture of the modified pattern of openings, to create a modified plasma density in said first region which is greater than said reduced plasma density.

4. The method of claim 3 including wherein said uniformly spaced-apart slots of said slotted electrostatic shield define a uniform slot and density and circumferentially around the slotted electrostatic shield with each slot defining a slot opening of equal area and wherein said modified shield includes a slot density of said slots adjacent to said first region that is greater than the uniform slot density.

5. The method of claim 3 wherein said uniformly spaced-apart slots of said slotted electrostatic shield define a uniform slot density circumferentially around the slotted electrostatic shield with each slot defining a slot opening of an unmodified, equal area and wherein said modified shield includes a slot arrangement adjacent to said first region made of at least one modified slot having a modified slot opening defining a modified area, adjacent to said first region, that is greater than said unmodified area.

6. In a processing chamber that uses an inductively coupled plasma source which produces a plasma density having a given radial variation characteristic across a treatment surface of a treatment object therein using a given electrostatic shield, a method comprising the steps of:

configuring an electrostatic shield arrangement to replace said given electrostatic shield in a way which provides for producing a modified radial variation characteristic across said treatment surface which is different than said given radial variation characteristic.

7. The method of claim 6 including the step of using the electrostatic shield arrangement to produce said modified radial variation characteristic as being more constant across said treatment surface than the given radial variation characteristic.

8. The method of claim 6 wherein said inductively coupled plasma source defines an axis of symmetry and said electrostatic shield arrangement is configured to include at least a sidewall arrangement having a shape that extends through a range of radii relative to said axis of symmetry.

9. The method of claim 8 including forming said electrostatic shield arrangement to include a modified slot arrangement that is made up of a plurality of elongated modified slots, each of which includes a length in said sidewall that extends through at least a portion of said range of radii and each of which includes a width that varies at least partially along said length for producing said modified radial variation characteristic.

10. The method of claim 8 wherein said electrostatic shield arrangement is at least generally conical in configuration.

11. The method of claim 8 wherein said electrostatic shield arrangement is at least generally frustoconical in configuration.

12. The method of claim 8 wherein said electrostatic shield arrangement is at least generally dome-shaped in configuration.

13. The method of claim 8 wherein said electrostatic shield arrangement includes a plate-like upper surface that is arranged to intersect said axis of symmetry.

14. The method of claim 8 wherein configuring includes arranging said electrostatic shield arrangement to include at least a first, inner shield member and a second, outer shield member, said inner shield member defining a first aperture pattern and said outer shield member defining a second aperture pattern, and supporting the outer shield member outside of and adjacent to the inner shield member and rotating the outer shield member relative to the inner shield member to cause the first aperture pattern to cooperate with the second aperture pattern in a way which provides a range in said modified radial variation characteristic across said treatment surface.

15. The method of claim 14 including a rotation arrangement for sensing the modified radial variation characteristic and for rotating one of the inner shield member and the outer shield member responsive to a sensed value of the modified radial variation characteristic.

16. The method of claim 14 wherein said electrostatic shield arrangement is configured such that each of the inner shield member and the outer shield member are frustoconical in configuration, said inner shield member including an inner shield sidewall and said outer shield member including an outer shield sidewall such that the inner shield sidewall and the outer shield sidewall are adjacent to one another.

17. The method of claim 8 wherein configuring includes arranging said electrostatic shield arrangement to include at least a first shield member and a second shield member, said first shield member defining a first aperture pattern, and supporting said second shield member outside the first shield member for linear movement in relation to the first shield member in a way which produces a range in said modified radial variation characteristic across said treatment surface.

18. The method of claim 17 wherein said first shield member is frustoconical in configuration having a narrowed end and said second shield member is supported for movement toward and away from the narrowed end of the first shield member.

19. The method of claim 18 including forming said narrowed end having a through opening and said second shield member moves toward and away from said through opening.

20. The method of claim 18 wherein the frustoconical configuration of the first shield member includes a conical sidewall having an upper peripheral edge and a top wall having an outer peripheral edge that is connected with the upper peripheral edge of the conical sidewall.

21. The method of claim 20 wherein said conical sidewall and said top wall cooperate to define an overall aperture pattern that carries in a continuous manner from the conical sidewall to the top wall.

22. The method of claim 21 including forming said overall aperture pattern as a circumferential arrangement of wedge-shaped apertures each defined as having a base edge in the conical sidewall and an apex in said top wall.

23. The method of claim 8 wherein configuring includes arranging said electrostatic shield arrangement to include at least a first shield member and a second shield member, said first shield member defining a first aperture pattern and said second shield member defining a second aperture pattern, and supporting said second shield member outside the first shield member for rotational movement about said axis of symmetry and in relation to the first shield member in a way which produces a range in said modified radial variation characteristic across said treatment surface by rotating the second shield member relative to the first shield member.

24. The method of claim 23 wherein said first shield member is frustoconical in configuration having a conical sidewall and a narrowed end that is closed by an upper surface, and said conical sidewall and said upper surface cooperate to define said first aperture pattern as a plurality of spaced apart openings that carry in a continuous manner from the conical sidewall into the upper surface, and said second shield member is formed to include a major surface that is arranged in a confronting relationship with said upper surface of the first shield member, said major surface defining a plurality of slots, as the second aperture pattern, complementing said spaced apart openings, as defined in the upper surface of the first shield member, and arranging the second shield member for rotation about said axis of symmetry such that rotation of the second shield member relative to the first shield member modifies said radial variation characteristic.

25. The method of claim 24 wherein said spaced apart openings of the first aperture pattern and said slots of the second aperture pattern are each configured as wedge-shaped such that each of the openings in the first shield member includes a base edge in the conical sidewall and an apex in said upper surface.

26. The method of claim 24 including forming said second shield member to include a skirt that extends from an outermost edge of said major surface in a confronting relationship with said conical sidewall of the first shield member and at least a portion of said second aperture pattern is defined in said skirt.

27. The method of claim 1 including using a semiconductor wafer as said treatment object.

28. In a processing system including a processing chamber, an apparatus for making a more uniform plasma and process in said processing chamber for treating an object therein having a treatment surface using an inductively coupled plasma source which produces an asymmetric plasma density pattern at the treatment surface using a given electrostatic shield, said arrangement comprising:

a modified electrostatic shield arrangement, for replacing said given electrostatic shield, such that the modified electrostatic shield arrangement compensates for said asymmetric plasma density pattern to provide a modified plasma density pattern at said wafer.

29. The apparatus of claim 28 wherein the asymmetric plasma density pattern includes a first region having a reduced plasma density, which is less than an average plasma density of the asymmetric plasma density pattern, and wherein said modified electrostatic shield includes a modified slot pattern such that a first portion of the modified slot pattern adjacent to said first region includes an increased effective aperture that is greater than an average effective aperture of the overall modified slot pattern, to create a modified plasma density in said first region which is greater than said reduced plasma density.

30. In a system having a processing chamber that uses an inductively coupled plasma source which produces a plasma density having a given radial variation characteristic across a treatment surface of a treatment object within the chamber using a given electrostatic shield, an apparatus comprising:

an electrostatic shield arrangement, for replacing said given electrostatic shield, to provide for producing a modified radial variation characteristic across the treatment surface which is different than said given radial variation characteristic.

31. The apparatus of claim 30 wherein said electrostatic shield arrangement is configured to produce a modified radial variation characteristic that is more constant across said treatment surface than the given radial variation characteristic.

32. The apparatus of claim 30 wherein said inductively coupled plasma source defines an axis of symmetry and said electrostatic shield arrangement includes at least a sidewall arrangement having a shape that extends through a range of radii relative to said axis of symmetry.

33. The apparatus of claim 32 wherein said electrostatic shield arrangement is formed to include a modified slot arrangement that is made up of a plurality of elongated modified slots, each of which includes a length in said sidewall that extends through at least a portion of said range of radii and each of which includes a width that varies at least partially along said length for producing said modified radial variation characteristic.

34. The apparatus of claim 32 wherein said adjustable electrostatic shield arrangement is at least generally conical in configuration.

35. The apparatus of claim 32 wherein said adjustable electrostatic shield arrangement is at least generally frustoconical in configuration.

36. The apparatus of claim 32 wherein said adjustable electrostatic shield arrangement is at least generally dome-shaped in configuration.

37. The apparatus of claim 32 wherein said adjustable electrostatic shield arrangement includes a plate-like upper surface that is arranged to intersect said axis of symmetry.

38. The apparatus of claim 32 wherein said electrostatic shield arrangement includes at least a first, inner shield member and a second, outer shield member, said inner shield member defining a first aperture pattern and said outer shield member defining a second aperture pattern, and the outer shield member nests proximate to the outer shield member and the inner and outer shield members are supported for rotation relative to one another such that the first aperture pattern cooperates with the second aperture pattern in a way which provides a range in said modified radial variation characteristic across said treatment surface.

39. The apparatus of claim 38 including a rotation arrangement for sensing the modified radial variation characteristic and for rotating one of the inner shield member and the outer shield member responsive to a sensed value of the modified radial variation characteristic.

40. The apparatus of claim 38 wherein said electrostatic shield arrangement is configured such that each of the inner shield member and the outer shield member are frustoconical in configuration, said inner shield member including an inner shield sidewall and said outer shield member including an outer shield sidewall such that the inner shield sidewall and the outer shield sidewall are adjacent to one another.

41. The apparatus of claim 32 wherein said electrostatic shield arrangement includes at least a first shield member and a second shield member, said first shield member defines a first aperture pattern, and said second shield member is supported for linear movement in relation to the first shield member in a way which produces a range in said modified radial variation characteristic across said treatment surface.

42. The apparatus of claim 41 wherein said first shield member is frustoconical in configuration having a narrowed end and said second shield member is supported for movement toward and away from the narrowed end of the first shield member.

43. The apparatus of claim 42 wherein said narrowed end is formed having a through opening and said second shield member moves toward and away from said through opening.

44. The apparatus of claim 42 wherein the frustoconical configuration of the first shield member includes a conical sidewall having an upper peripheral edge and a top wall having an outer peripheral edge that is connected with the upper peripheral edge of the conical sidewall.

45. The apparatus of claim 44 wherein said conical sidewall and said top wall cooperate to define an overall aperture pattern that carries in a continuous manner from the conical sidewall to the top wall.

46. The apparatus of claim 45 wherein said overall aperture pattern is formed as a circumferential arrangement of wedge-shaped apertures, each defined as having a base edge in the conical sidewall and an apex in said top wall.

47. The apparatus of claim 32 wherein said electrostatic shield arrangement is arranged to include at least a first shield member and a second shield member, said first shield member defining a first aperture pattern and said second shield member defining a second aperture pattern, and supporting said second shield member outside the first shield member for rotational movement about said axis of symmetry and in relation to the first shield member in a way which produces a range in said modified radial variation characteristic across said treatment surface by rotating the second shield member relative to the first shield member.

48. The apparatus of claim 47 wherein said first shield member is frustoconical in configuration having a conical sidewall and a narrowed end that is closed by an upper surface, and said conical sidewall and said upper surface cooperate to define said first aperture pattern as a plurality of spaced apart openings that carry in a continuous manner from the conical sidewall into the upper surface, and said second shield member is formed to include a major surface that is arranged in a confronting relationship with said upper surface of the first shield member, said major surface defining a plurality of slots, as the second aperture pattern, complementing said spaced apart openings, as defined in the upper surface of the first shield member, such that rotation of the second shield member relative to the first shield member produces said modified radial variation characteristic.

49. The apparatus of claim 48 wherein said apertures and said slots are configured as wedge-shaped such that each of the apertures in the first shield member includes a base edge in the conical sidewall and an apex in said upper surface.

50. The apparatus of claim 48 wherein said second shield member includes a skirt that extends from an outermost edge of said major surface in a confronting relationship with said conical sidewall of the first shield member and at least a portion of said second aperture pattern is defined in said skirt.

51. The apparatus of claim 28 including using a semiconductor wafer as said treatment object.